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all	all	Reformatted header/footer & title pages for ARGANS		
	4	Added new chapter on L2 OS dependency model (orchestration)		
	5	Added task tables & updated operational configuration tables		
	5.2.3 & 5.3.3	Updated main configuration files AUX_CNFOSF & AUX_CNFOSD		
	5.2.3	Updated private configuration file CNF_L2OS__		
	7	New section listing GSL log messages added		
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64...	6	‘Exit code’ replaced by ‘return code’ (pre-QR RID jcd-105)		
75	7	Clarification of info, warning & error messages (pre-QR RID jcd-105)		
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	4.1	Explained update rate fields (pre-QR RID jcd-105a)		
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	7	Added “Start of processing” & “End of processing” to list of INFO messages (PR-0050)
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11	1	Corrected AUX_ORBSCT to MPL_ORBSCT
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8	3.2	Added missing config & schemas directories to tree
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82	6	Corrected ERROR_CODE_CONFIG_PROTO_READPARAMINDICES_NO OPEN description (PR-FAT-GUI-2)
13-16	4.3	Removed “The file name is correctly constructed” & “The file version field (vvv) must be the one accepted for this version of the processor”; appended “as specified by the Fixed Header Creation_Date.” to “If multiple files fulfil the above criteria, use the one with the latest generation time” (FAT_V4_ACT_32)
29	6	Added new error codes 183-188, 251-254
17	5.2, 5.3	Removed file lists; added references to master versions of con figuration files
30	7	Updated GSL info messages
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Page #	**Section #**	**Comments**
8	3.2	replaced explicit version by *L2OS___vv_vv.exe*

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1. Introduction

1.1 General

This document is the user manual of the SMOS L2 SSS core processor. The core processor has been developed to be operated on Linux 64 bit platforms. It is operated from the command line interface, provided the configuration of the processor is valid. Configuration of the software includes many files, switches, selectors and parameters that are delivered in the distribution packages.

1.2 Guide to this document

This document addresses the L2 OS core processor installation and use.
For detailed information on the processor, numerous documents are released along with the software:

- For scientific aspects of the SMOS L2 OS processing, see the Algorithm Theoretical Baseline Document [R.D. 1].
- For inputs and output data, including the configuration files, see the L2 products specification document [R.D. 4] and the SMOS L1 auxiliary data specification format [R.D. 13].
- For details on the data processing, see the Detailed Processing Model [R.D. 3].
- For details on the material released along with the processor, see the Operational Processor Software Release Document SO-RN-ARG-GS-0019.

1.3 Applicable Documents

The list of applicable documents is available in the Operational Processor Software Release Document SO-RN-ARG-GS-0019.

1.4 Reference Documents

The list of reference documents is available in the Operational Processor Software Release Document SO-RN-ARG-GS-0019.

1.5 Abbreviations

The list of acronyms is available in the Operational Processor Software Release Document SO-RN-ARG-GS-0019.

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2 Overview

2.1 Introduction

Figure 1 shows the organisation and data flow of the Processor. The processing is launched through the command line interface (shell window). The user can follow the execution using the information generated by the processor on standard output (stdout) or on standard error output (stderr) within the shell window.
Visualization of products can be done using SMOSview. The breakpoint report files in HDF5 format can by visualized with hdfview.

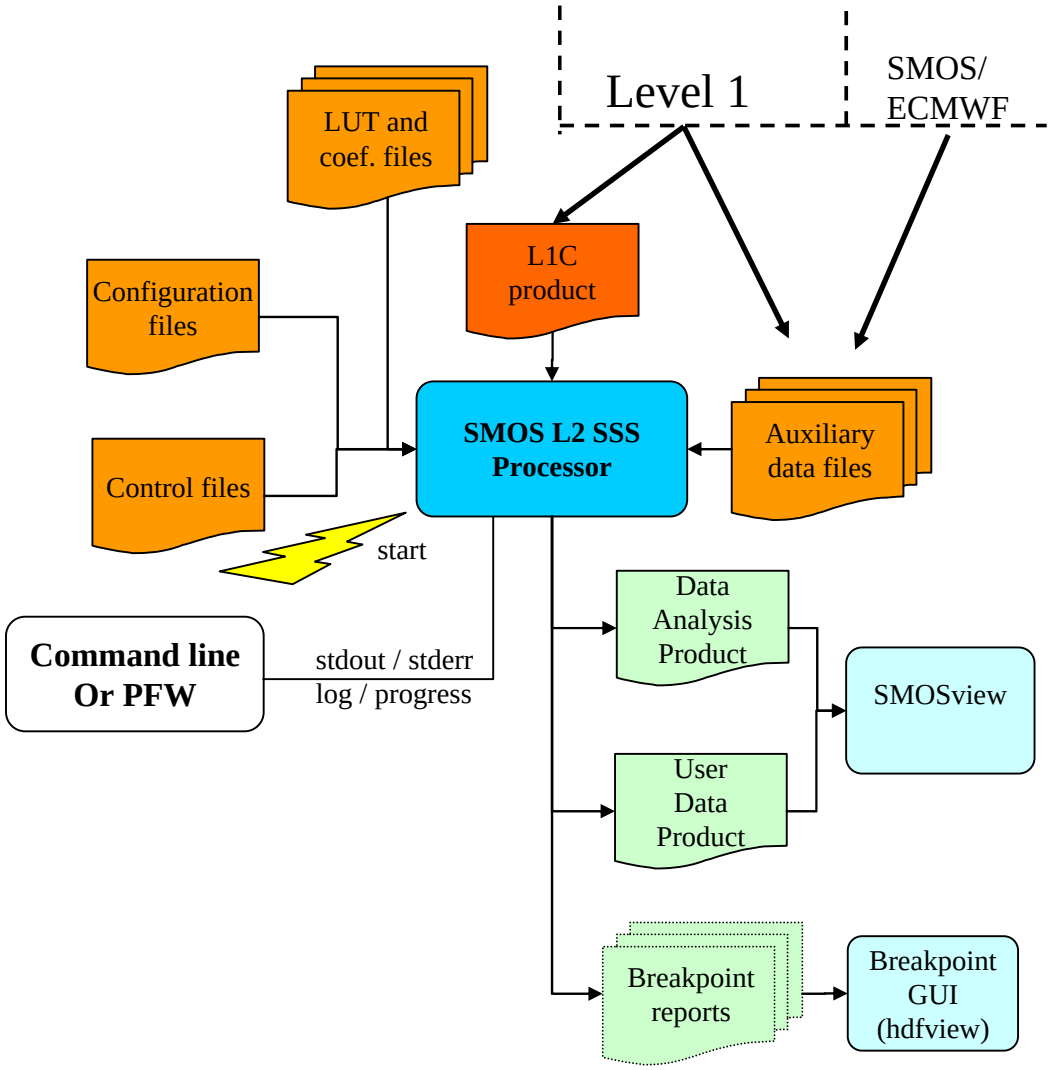

Figure 1: Overview of the SMOS L2 SSS processor and its files

2.2 Data GUI

To visualize SMOS products, use SMOSview.

2.3 Breakpoint report GUI

The operational processor should not be configured so that breakpoint reports are generated. The breakpoint report GUI is either a text editor or HDFview because the breakpoint reports are either in text format or in HDF5 format.

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3 Installation and operation

3.1 Installation of the core processor

The software is intended to be installed on a Linux 64 bit operating system environment. The Red Hat 5 Enterprise operating system is recommended because it is the environment on which the processor has been implemented and tested.

We assume hereafter that the processor and all necessary auxiliary and input data files have already been installed and that an environment variable SMOS_ROOT has been set, pointing to the installation directory. To install, to test and to use the processor from source codes, follow the procedure in section 4.1 of the Operational Processor Software Release Note SO-RN-ARG-GS-0019.

HDFview is needed to visualize breakpoint report files. To download this software, follow the link http://hdf.ncsa.uiuc.edu/hdf-java-html/hdfview/. Installation procedure is embedded in the downloaded file.

3.2 Tree organization

After installation of the processor, the following file/directory structures will be accessible.

Type	Files	Path
Processor	Binary executable	*$SMOS_ROOT/dev/L2OS___vv_vv.exe*
	Input configuration files, data and schema	*$SMOS_ROOT/smos/config/* *$SMOS_ROOT/smos/schemas/* *$SMOS_ROOT/smos/products/*
	Processor libraries	*$SMOS_ROOT/libpackages*

$SMOS_ROOT is an environment variable pointing to the processor installation directory.

In order to run correctly, the processor needs the following hardware and software resources:

3.2.1 Hardware

- LINUX Operating System 64 bits (x86_64)
- 4 Gb of RAM
- At least 4Gb of disk space for installation (this does not include space needed for creating or running jobs)

3.2.2 Software

The SMOS L2 operational processor uses external libraries. They are included in the software package. Some libraries need licensing, such as the Earth Explorer CFI library. Therefore, you must accept the licenses of all third party software to use the SMOS L2 prototype processor. Third party software are:

- Earth Explorer CFI software. Contact http://eop-cfi.esa.int/ to obtain the license.
- HDF5 library

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- Log4c
- XML2
- XML_RW_API from Indra Espacio (www.indra.es)
- GSL from Indra Espacio (www.indra.es)

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4 L2 OS Dependency Model

The Dependency Model is the set of rules designed for each processor to generate its outputs based on specific combinations of input data files. This model tells the checking module which the valid relations are between files in order to successfully process SMOS data to upper processing levels.

The interaction between the L2 OS Processor and the DPGS is physically done through the interface between the PDPC-Core and the processing hosts where the processor is installed. The PDPC-Core shall be responsible for providing the best set of inputs to the L2 OS Processor in order it can process products with the best possible quality.

The PDPC-Core shall select the inputs accordingly to a configured set of rules for each executable. This set of selection rules is the dependency model. The orchestration of the execution of each L2 OS processing tasks thus consists in the configuration of the PDPC-Core accordingly to the dependency model for the L2 OS Processor executable.

The number of inputs delivered for each product type should be the least possible to avoid increasing the transfer flow across the network.

Nominal L2 OS processing will be launched as part of the SMOS processing chain by the PDPC-Core through its Processing Framework, providing the L2 OS Processor with the required inputs. The list of inputs will be made available through the Job Order, which also gives the time periods in which each product should be used.

In the operational chain, the PDPC-Core will be responsible for running multiple L2 OS Processor job orders with the associated input data simultaneously on the operational hardware, in order to optimise processing power.

The processing of auxiliary data files shall be performed off-line in the CEC facilities. Unlike the nominal L2 OS processing task, the pre-processors and the post-processors will not be launched directly by the PDPC-Core but will be triggered upon arrival of new input data.

4.1 L2 OS Auxiliary Data

L2 OS processing depends on the availability of the set of auxiliary data shown in the table below.

ID	Product description	Source	Update rate
AUX_FLTSEA	Physical Constants needed by Flat Sea Model	ICM-CSIC / ARGANS	None
AUX_RGHNS1	Look Up Tables needed by L2 Processor for the IPSL Ocean Roughness Model	IPSL / ARGANS	None
AUX_RGHNS2	Look Up Tables needed by L2 Processor for the IFREMER Ocean	IFREMER / ARGANS	None

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	Roughness Model		
AUX_RGHNS3	Look Up Tables needed by L2 Processor for the ICM-CSIC Ocean Roughness Model	ICM-CSIC / ARGANS	None
AUX_FOAM__	Physical Constants used by Foam Model	IFREMER / ARGANS	None
AUX_SGLINT	Bi-Static Scattering Coefficients Look Up Table used in Sun glint correction	IFREMER / ARGANS	None
AUX_ATMOS_	Physical Constants used by Atmospheric Model	IPSL / ARGANS	None
AUX_CNFOSD	Processor Configuration Parameters for Dual Polarisation L2 Ocean Salinity	ARGANS	If required by ESLs
AUX_CNFOSF	Processor Configuration Parameters for Full Polarisation L2 Ocean Salinity	ARGANS	If required by ESLs
AUX_DISTAN	Distance to the coast and monthly Sea/Ice Flag information over Discrete Global Grid	IFREMER / IPSL / ARGANS	None
AUX_SSS___	Monthly Sea Surface Salinity over Discrete Global Grid	IFREMER / IPSL / ARGANS	None
AUX_GAL_OS	AUX_GALAXY Map convolved with the Weighting Function AUX_WEF___	IFREMER / IPSL / ARGANS	If required by ESLs
AUX_GAL2OS	AUX_GALAXY Map 2 convolved with the Weighting Function AUX_WEF___	IFREMER / IPSL / ARGANS	If required by ESLs
AUX_ECMWF_	ECMWF data on the ISEA 4-9 DGG corresponding to SMOS halforbit	ECMWF preprocessor	Every 3 hours
AUX_DGG___	ISEA4-9 Discrete Global Grid used in geolocation	L1	None
MPL_ORBSCT	Orbit scenario used to initialise ESA EARTH EXPLORER CFI functions	L1	If required by DPGS

Table 1: L2 OS Auxiliary Data Files

For each auxiliary data file, the table shows the source and update rate. All the files listed are mandatory for processing.

The update rate should give an indication of the period for which the file is valid (validity duration). Where no update of the file is expected, the file should be valid for the duration of the mission, although updates will probably occur.

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4.2 Conventions

The following conventions are used in sections that follow when defining the dependencies:

- Mandatory/Optional: defines whether a supporting product is always needed for a processing task (mandatory) or the processing can still be performed in its absence through a backup solution (optional).

- Triggering: defines the conditions that must be met to launch the processing task.

- MIR_SCSx1C shall refer to either MIR_SCSD1C (dual-polarisation) or MIR_SCSF1C (full-polarisation). Either one of these products will be used as input to the L2 processor, but not both.

- AUX_CNFOSx shall refer to either AUX_CNFOSD (dual-polarisation) or AUX_CNFOSF (full-polarisation). Either one of these products will be used as input to the L2 processor, but not both. MIR_SCSx1C **must** match AUX_CNFOSx (ie x = D for both, or x = F for both).

4.3 L2 OS processing

1. Executable to be Called (by PDPC-Core): L2OS___<vv>_<rr>.exe

2. Processing Task:

- Processing of an ocean L1c product to a SMOS sea surface salinity products (UDP and DAP) as described in [AD. xx].

- To launch OS processing the Job Order must contain:

    - one MIR_SCSx1C Product
    - the following Auxiliary data files:
        - AUX_ATMOS_
        - AUX_CNFOSx
        - AUX_DGG___
        - AUX_DISTAN
        - AUX_ECMWF_
        - AUX_FOAM__
        - AUX_FLTSEA
        - AUX_GAL_OS
        - AUX_GAL2OS
        - AUX_RGHNS1
        - AUX_RGHNS2
        - AUX_RGHNS3
        - AUX_SGLINT
        - AUX_SSS___
        - MPL_ORBSCT
    - Related Task_Table: L1c sea to L2 OS processing

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3. Main Input Product: One MIR_SCSx1C

4. Triggering: Ingestion of a MIR_SCSx1C in the PDPC-Core/PAS

5. List of supporting products needed:

- □ AUX_ATMOS_: Physical Constants used by Atmospheric Model
  - o Mandatory
  - o Dependency check:
    - ▪ MIR_SCSx1C_ sensing start time >= AUX_ATMOS_ validity start time
    - ▪ MIR_SCSx1C_ sensing stop time <= AUX_ATMOS_ validity stop time
    - ▪ If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- □ AUX_CNFOSx: Processor Configuration Parameters for L2 Ocean Salinity
  - o Mandatory
  - o Dependency check:
    - ▪ MIR_SCSx1C_ sensing start time >= AUX_CNFOSx validity start time
    - ▪ MIR_SCSx1C_ sensing stop time <= AUX_CNFOSx validity stop time
    - ▪ The x of the AUX_CNFOSx filename is the same as the x in the MIR_SCSx1C_ filename.
    - ▪ If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- □ AUX_DGG___: ISEA4-9 Discrete Global Grid used in geolocation
  - o Mandatory
  - o Dependency check:
    - ▪ MIR_SCSx1C _ sensing start time >= AUX_DGG validity start time
    - ▪ MIR_SCSx1C _ sensing stop time <= AUX_DGG validity stop time
    - ▪ If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- □ AUX_DISTAN: Distance to the coast and monthly Sea/Ice Flag information over Discrete Global Grid
  - o Mandatory
  - o Dependency check:
    - ▪ MIR_SCSx1C_ sensing start time >= AUX_DISTAN validity start time
    - ▪ MIR_SCSx1C_ sensing stop time <= AUX_DISTAN validity stop time
    - ▪ If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- □ AUX_ECMWF_: ECMWF data on the ISEA 4-9 DGG corresponding to SMOS half-orbit
  - o Mandatory
  - o Dependency check:
    - ▪ MIR_SCSx1C_ sensing start time >= AUX_ECMWF_ validity start time
    - ▪ MIR_SCSx1C_ sensing stop time <= AUX_ECMWF_ validity stop time
    - ▪ If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

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- AUX_FOAM__: Physical Constants used by Foam Model
  - Mandatory
  - Dependency check:
    - MIR_SCSx1C_ sensing start time >= AUX_FOAM__ validity start time
    - MIR_SCSx1C_ sensing stop time <= AUX_FOAM__ validity stop time
    - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- AUX_FLTSEA: Physical Constants needed by Flat Sea Model
  - Mandatory
  - Dependency check:
    - MIR_SCSx1C_ sensing start time >= AUX_FLTSEA validity start time
    - MIR_SCSx1C_ sensing stop time <= AUX_FLTSEA validity stop time
    - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- AUX_GAL_OS: AUX_GALAXY Map convolved with the Weighting Function AUX_ WEF___
  - Mandatory
  - Dependency check:
    - MIR_SCSx1C_ sensing start time >= AUX_GAL_OS validity start time
    - MIR_SCSx1C_ sensing stop time <= AUX_GAL_OS validity stop time
    - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- AUX_GAL2OS: AUX_GALAXY Map 2 convolved with the Weighting Function AUX_ WEF___
  - Mandatory
  - Dependency check:
    - MIR_SCSx1C_ sensing start time >= AUX_GAL2OS validity start time
    - MIR_SCSx1C_ sensing stop time <= AUX_GAL2OS validity stop time
    - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- AUX_RGHNS1: Look Up Tables needed by L2 Processor for the IPSL Ocean Roughness Model
  - Mandatory
  - Dependency check:
    - MIR_SCSx1C_ sensing start time >= AUX_RGHNS1 validity start time
    - MIR_SCSx1C_ sensing stop time <= AUX_RGHNS1 validity stop time
    - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

- AUX_RGHNS2: Look Up Tables needed by L2 Processor for the IFREMER Ocean Roughness Model
  - Mandatory
  - Dependency check:
    - MIR_SCSx1C_ sensing start time >= AUX_RGHNS2 validity start time

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- MIR_SCSx1C_ sensing stop time <= AUX_RGHNS2 validity stop time
- If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

□ AUX_RGHNS3: Look Up Tables needed by L2 Processor for the ICM-CSIC Ocean Roughness Model
- Mandatory
- Dependency check:
  - MIR_SCSx1C_ sensing start time >= AUX_RGHNS3 validity start time
  - MIR_SCSx1C_ sensing stop time <= AUX_RGHNS3 validity stop time
  - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

□ AUX_SGLINT: Bi-Static Scattering Coefficients Look Up Table used in Sun glint correction
- Mandatory
- Dependency check:
  - MIR_SCSx1C_ sensing start time >= AUX_SGLINT validity start time
  - MIR_SCSx1C_ sensing stop time <= AUX_SGLINT validity stop time
  - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

□ AUX_SSS___: Monthly Sea Surface Salinity over Discrete Global Grid
- Mandatory
- Dependency check:
  - MIR_SCSx1C_ sensing start time >= AUX_SSS___ validity start time
  - MIR_SCSx1C_ sensing stop time <= AUX_SSS___ validity stop time
  - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

□ MPL_ORBSCT: Orbit scenario used to initialise ESA EARTH EXPLORER CFI functions
- Mandatory
- Dependency check:
  - MIR_SCSx1C_ sensing start time >= MPL_ORBSCT validity start time
  - MIR_SCSx1C_ sensing stop time <= MPL_ORBSCT validity stop time
  - If multiple files fulfil the above criteria, use the one with the latest generation time as specified by the Fixed Header Creation_Date.

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5 Operational configurations

5.1 Introduction

The SMOS L2 SSS processor handles many files that are either input files or output files. Input files are loaded in the processor. They include either data or configuration information. A technical description of the content of all files handled by the prototype processor is available in [R.D. 4] or [R.D. 16].

We focus hereafter on the configuration that is recommended for operational purpose (DPGS). It addresses the main files for the two modes of measurement of SMOS:

- the full polarization mode
- the dual polarization mode

We detail below the main files for each mode that are:

- the task table file (CNF_TSKTBL)
- the private configuration file (CNF_L2OS)
- the main configuration file (AUX_CNFOSx) that contains:
  - Iterative scheme configuration
  - Geophysical parameter definition
  - Threshold file
  - Physical constant definition
  - Post Processor configuration file
  - Overall quality threshold

5.2 Full polarization mode

5.2.1 The task table

The task table for full polarisation is:

SM_OPER_CNF_TSKTBL_20080801T000000_20500101T000000_vvv_rrr_1.xml

(vvv is the processor version, eg 306; rrr is the release version, eg 001), and it can be found under the installation directory in:

$SMOS_ROOT\smos\task_tables\MIR_SCSF1C

5.2.2 The private configuration file

Same private configuration is used for dual and full polarization modes:

SM_OPER_CNF_L2OS___20050101T000000_20500101T000000_vvv_rrr_1.EEF

(vvv is the processor version, eg 306; rrr is the release version, eg 001), and it can be found under the installation directory in:

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$SMOS_ROOT\smos\products\CNF_\L2OS__

5.2.3 The main configuration file (AUX_CNFOSF)

The main configuration file for dual polarisation is:

SM_OPER_AUX_CNFOSF_20050101T000000_20500101T000000_vvv_rrr_8.EEF

(vvv is the processor version, eg 306; rrr is the release version, eg 001), and it can be found under the installation directory in:

$SMOS_ROOT\smos\products\AUX_\CNFOSF

5.3 Dual polarization mode

5.3.1 The task table

The task table for dual polarisation is:

SM_OPER_CNF_TSKTBL_20080801T000000_20500101T000000_vvv_rrr_1.xml

(vvv is the processor version, eg 306; rrr is the release version, eg 001), and it can be found under the installation directory in:

$SMOS_ROOT\smos\task_tables\MIR_SCSD1C

5.3.2 The private configuration file

Same private configuration is used for dual and full polarization modes:

SM_OPER_CNF_L2OS___20050101T000000_20500101T000000_vvv_rrr_1.EEF

(vvv is the processor version, eg 306; rrr is the release version, eg 001), and it can be found under the installation directory in:

$SMOS_ROOT\smos\products\CNF_\L2OS__

5.3.3 The main configuration file (AUX_CNFOSD)

The main configuration file for dual polarisation is:

SM_OPER_AUX_CNFOSD_20050101T000000_20500101T000000_vvv_rrr_8.EEF

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(vvv is the processor version, eg 306; rrr is the release version, eg 001), and it can be found under the installation directory in:

$SMOS_ROOT\smos\products\AUX_\CNFOSD

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6 Return codes

When the processor stops, it returns with a specific code. The return code may help targeting the origin of errors. Below is a list of return codes and identification of the error source.

Two special return codes are 0 for normal termination of the processing and 255 when the processing is cancelled. Other return codes are groupes in two categories: If the return code is lower than 127, L2 output products may be incomplete. Above 128, the return code indicates that no L2 output product is generated but product reports (containing errors & warnings) are still produced by the processor.

Internal Error Name. L2 ouput product may be incomplete.	Return code	Function that generates the error and error description
ERROR_CODE_WRITE_OUTPUTS_WRITEFIXEDHEADER_SETELEMENTDATA	8,	writeFixedHeader.c, Cannot set data in fixed header
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_GETHEADER	9,	writeUDPFile.c, Cannot get OSUDP2 header
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_EDITPRODUCT	10,	writeUDPFile.c, Cannot edit product SUDP2
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_NODELETE	11,	writeUDPFile.c, Cannot delete object
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_GETDATASET	12,	writeUDPFile.c, Cannot get data set of OSUDP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_GETDATASETRECORD	13,	writeUDPFile.c, Cannot get data set record of OSUDP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_WRITEDATASETRECORD	14,	writeUDPFile.c, Cannot write data set record for OSUDP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_SETELEMENTDATA	15 ,	writeUDPFile.c, Cannot set data for OSUDP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITESPECIFICHEADER_GETNODE	16,	writeSpecificProductHeader.c, Cannot get node while writing SPH
ERROR_CODE_WRITE_OUTPUTS_WRITEMAINHEADER_GETNODE	17,	writeMainHeader.c, Cannot get Node while writing main product header
ERROR_CODE_WRITE_OUTPUTS_WRITEFIXEDHEADER_GETNODE	18,	writeFixedHeader.c, Cannot get Node while writing fixed header
ERROR_CODE_WRITE_OUTPUTS_WRITESPECIFICHEADER_SETOUTERDIM	19,	writeSpecificProductHeader.c, Cannot set outer dimension

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Internal Error Name. L2 ouput product may be incomplete.	Return code	Function that generates the error and error description
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_SETOUTERDIM	20,	writeUDPFile.c, Cannot set outer dimension
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_CREATEPRODUCT	21,	writeUDPFile.c, Cannot create OSUDP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_CREATEPRODUCT	22,	writeReport.c, Cannot create product report
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_CREATEHEADER	23,	writeReport.c, Cannot create product header
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_CREATEDATABLOCK	24,	writeReport.c, Cannot create data block
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_GETNODE	25,	writeReport.c, Cannot get Node while writing product report
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_SETOUTERDIM	26,	writeReport.c, Cannot set outer dimension
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_CREATEHEADER	27,	writeUDPFile.c, Cannot create header for OSUDP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_GETCOUNT	28,	writeUDPFile.c, Cannot get count attribute
ERROR_CODE_WRITE_OUTPUTS_WRITEUDPFILE_CREATEDATABLOCK	29,	writeUDPFile.c, Cannot create data block
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_WRITEHEADER	30,	writeReport.c, Cannot write header
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_WRITEDATABLOCK	31,	writeReport.c, Cannot write data block
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_TYPE_NOTEXIST	31,	writeReport.c, Product type not exist
ERROR_CODE_WRITE_OUTPUTS_WRITEREPORT_EDIT_PRODUCT	31,	writeReport.c, Cannot edit product report
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_GETHEADER	32,	writeDAPFile.c, Cannot get OSDAP2 header
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_EDITPRODUCT	33,	writeDAPFile.c, Cannot edit product OSDAP2
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_NODELETE	34,	writeDAPFile.c, Cannot delete object
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_GETDATASET	35,	writeDAPFile.c, Cannot get data set of OSDAP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_GETDATASETRECORD	36,	writeDAPFile.c, Cannot get data set record of OSDAP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_WRITEDATASETRECORD	37,	writeDAPFile.c, Cannot write data set record for
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_SETELEMENTDATA	38,	writeDAPFile.c, Cannot set data for OSDAP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_SETOUTERDIM	39,	writeUDPFile.c, Cannot set outer dimension
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_CREATEPRODUCT	40,	writeUDPFile.c, Cannot create OSDAP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_CREATEHEADER	41,	writeUDPFile.c, Cannot create header for OSDAP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_GETCOUNT	42,	writeUDPFile.c, Cannot get count attribute
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_CREATEDATABLOCK	43,	writeUDPFile.c, Cannot create data block
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_WRITEPRIORANDSIGMA	44,	writeUDPFile.c, Cannot write prior and sigma
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_WRITEESTIMANDSIGMA	45,	writeUDPFile.c, Cannot write estim. and sigma
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_WRITEHEADER	46,	writeUDPFile.c, Cannot write header of OSDAP2

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Internal Error Name. L2 ouput product may be incomplete.	Return code	Function that generates the error and error description
		product
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_SETOUTERDIMENSION	47,	writeUDPFile.c, Cannot set outer dimension
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_GETNODE	48,	writeUDPFile.c, Cannot get node
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_GETCHECKSUM	49,	writeUDPFile.c, Cannot get check sum of data block
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_WRITEFIXEDHEADER	50,	writeUDPFile.c,Cannot write fixed header of OSDAP2 product
ERROR_CODE_WRITE_OUTPUTS_WRITEDAPFILE_WRITEMAINHEADER	51,	writeUDPFile.c, Cannot write main header of OSDAP2 product
ERROR_CODE_WRITE_OUTPUTS_SET_ELEMENT_DATA	52	setElementData.c, Cannot set element data.

Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_MAIN_WRONG_ARG	128,	main.c, wrong number of arguments passed to the executable
ERROR_CODE_AUX_DATA_PROCESSOR_APPLYBEFG_SIGMA_ABS	129,	applyBEFG.c, unable to compute absolute uncertainty on prior
ERROR_CODE_AUX_DATA_PROCESSOR_APPLYBEFG_SIGMA_REL	129,	applyBEFG.c, unable to compute relative uncertainty on prior
ERROR_CODE_AUX_DATA_PROCESSOR_APPLYBEFG_BIAS1	129,	applyBEFG.c, unable to compute bias 1 correction on geophysical parameter
ERROR_CODE_AUX_DATA_PROCESSOR_APPLYBEFG_BIAS2	129,	applyBEFG.c, unable to compute bias 2 correction on geophysical parameter
ERROR_CODE_AUX_DATA_PROCESSOR_APPLYBEFG_FIRSTGUESS	129,	applyBEFG.c, unable to compute first guess of geophysical parameter
ERROR_CODE_AUX_DATA_PROCESSOR_GEOPHYERRORANDBIAS_NO_TABLE	130,	geophyErrorAndBias.c, Look-Up Table does not exist
ERROR_CODE_AUX_DATA_PROCESSOR_GEOPHYERRORANDBIAS_INDEX_WEIGHT_DIM1	130,	geophyErrorAndBias.c, Computation of index for interpolation along dimension 1 failed
ERROR_CODE_AUX_DATA_PROCESSOR_GEOPHYERRORANDBIAS_INDEX_WEIGHT_DIM2	130,	geophyErrorAndBias.c, Computation of index for interpolation along dimension 2 failed
ERROR_CODE_AUX_DATA_PROCESSOR_GEOPHYERRORANDBIAS_INDEX_WEIGHT_DIM3	130,	geophyErrorAndBias.c, Computation of index for interpolation along dimension 3 failed
ERROR_CODE_AUX_DATA_PROCESSOR_GEOPHYERRORANDBIAS_INDEX_WEIGHT_DIM4	130,	geophyErrorAndBias.c, Computation of index for interpolation along dimension 4 failed

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_XL_CHANGE_CART_CS_X1	131,	initAttitudeModel.c, EE CFI function XL_CHANGE_CART_CS returns in error for X unit vector
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_XL_CHANGE_CART_CS_Y1	131,	initAttitudeModel.c, EE CFI function XL_CHANGE_CART_CS returns in error for Y unit vector
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_XL_CHANGE_CART_CS_Z1	131,	initAttitudeModel.c, EE CFI function XL_CHANGE_CART_CS returns in error for Z unit vector
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_ALLOCMAT_TOD_J2000	131,	initAttitudeModel.c, fail to allocate memory for TOD_j2000 matrix
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_QUATERNIONS_TO_VECTORS	131,	initAttitudeModel.c, EE CFI function xl_quaternions_to_vectors returns in error
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_ALLOCMAT_U	131,	initAttitudeModel.c, fail to allocate memory for u_matrix
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_ALLOCMAT_MAT	131,	initAttitudeModel.c, fail to allocate memory for matrix mat
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_PRODMAT	131,	initAttitudeModel.c, Error while computing product of matrices
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_XP_ATTITUDE_INIT	131,	initAttitudeModel.c, EE CFI function XP_ATTITUDE_INIT returns in error
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_XP_ATTITUDE_USER_SET	131,	initAttitudeModel.c, EE CFI function XP_ATTITUDE_USER_SET returns in error
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_XL_CART_TO_GEOD_1	131,	initAttitudeModel.c, EE CFI function XL_CART_TO_GEOD returns in error for first snapshot
ERROR_CODE_FORWARD_MODEL_SUPPORT_INITATTITUDEMODEL_XL_CART_TO_GEOD_2	131,	initAttitudeModel.c, EE CFI function XL_CART_TO_GEOD returns in error for last snapshot
ERROR_CODE_TOOLS_CFIDATEFUNCTIONS_PROCESSINGFROMTRANSPORTTIME	132,	CFIDateFunctions.c/getProcessingTimeFromTransportTime, SS CFI function xl_time_transport_to_processing returns in error
ERROR_CODE_TOOLS_CFIDATEFUNCTIONS	132,	CFIDateFunctions.c, Error occured in CFIDateFunctions.c file
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEGEOMETRY_NOMEASUREMENT	133,	computeGeometry.c, no measurement found, cannot reah list of snapshots
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEANGLE_XPTARGETSTATION	133,	computeAngle.c, EE CFI function XP_TARGET_STATION returns in error
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEANGLE_XPTARGETEXTRAMAIN	133,	computeAngle.c, EE CFI function XP_TARGET_EXTRA_MAIN returns in error

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEANGLE_XPTARGET EXTRATOSUN	133,	computeAngle.c, EE CFI function XP_TARGET_EXTRA_TO_SUN returns in error
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEANGLE_XPTARGET EXTRATOMOON	133,	computeAngle.c, EE CFI function XP_TARGET_EXTRA_TO_MOON returns in error
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEANGLE_XLTIMETR ANSPORTTOASCII	133,	computeAngle.c, EE CFI function XL_TIME_TRANSPORT_TO_ASCII returns in error
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEGNANGLE_CHANGE CARTCS	133,	computeGalacticNoiseAngle.c, fail to compute change_cart_cs
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEGNANGLE_ALLOCM AT	133,	computeGalacticNoiseAngle.c, fail to allocate memory for matrix
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEGNANGLE_PRODMA T	133,	computeGalacticNoiseAngle.c, Error while computing product of matrices
ERROR_CODE_CONFIG_PROTO_READITERCOEF_RETRIEVPARAMID	134,	readIterCoef.c, readIterCoef function fails to read retrievParamId
ERROR_CODE_CONFIG_PROTO_READITERCOEF_NOOPEN	134,	readIterCoef.c, Cannot open the product CNFOS2
ERROR_CODE_CONFIG_PROTO_READITERCOEF_NODATA	134,	readIterCoef.c, Cannot load IterCoef data
ERROR_CODE_CONFIG_PROTO_READITERCOEF_ALLOC_LUT	134,	readIterCoef.c, fail to allocate memory for Itercoef lut
ERROR_CODE_CONFIG_PROTO_READITERCOEF_GET_NODE	134,	readIterCoef.c, Cannot get node
ERROR_CODE_CONFIG_PROTO_READITERCOEF_GETNODEDATA	134,	readIterCoef.c, Cannot get node data.
ERROR_CODE_FORWARD_MODEL_SUPPORT_COMPUTEERRORMODEL_ALL OCMATC_MOD_EARTH	135,	computeErrorModel.c, fail to allocate memory for matrix C_mod_Earth
ERROR_CODE_FORWARD_MODEL_COMPUTEROUGHNESSTB1_HERMIT	136,	computeRoughnessTb1.c, fail to compute hermit interpolation
ERROR_CODE_FORWARD_MODEL_COMPUTEROUGHNESSTB1_LINEAR	136,	computeRoughnessTb1L.c, fail to compute linear interpolation
ERROR_CODE_FORWARD_MODEL_COMPUTEROUGHNESSTB2_LINEAR	136,	computeRoughnessTb2.c, fail to compute linear interpolation
ERROR_CODE_FORWARD_MODEL_COMPUTESUMOFCONTRIB_MATHERR	136,	computeSumOfContribution.c, mathematical exception
ERROR_CODE_FORWARD_MODEL_FLATSEA_MATHERR	136,	flatsea.c, mathematical exception
ERROR_CODE_TOOLS_TOOLS_INVERSEDIAGMAT_NONSQUAREMAT	137,	tools.c, inverseDiagMat function, dimensions of input matrix are not equal
ERROR_CODE_TOOLS_TOOLS_INVERSEDIAGMAT_ALLOCMAT	138,	tools.c, inverseDiagMat function, fail to allocate memory for matrix invDiag
ERROR_CODE_TOOLS_TOOLS_INVERSEDIAGMAT_NONDIAGMAT	138,	tools.c, inverseDiagMat function, input matrix is not diagonal. Found non-diagonal term different from 0

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_TOOLS_TOOLS_TRANSPOSEMAT_ALLOCMAT	139,	tools.c, transposeMat function, fail to allocate memory for matrix st
ERROR_CODE_TOOLS_TOOLS_SUMMAT_SIZEMATS	140,	tools.c, sumMat function, inputs matrices are not with the same dimensions
ERROR_CODE_TOOLS_TOOLS_SUMMAT_ALLOCMAT	140,	tools.c, sumMat function, fail to allocate memory for matrix sum
ERROR_CODE_TOOLS_TOOLS_DIFFMAT_SIZEMATS	141,	tools.c, diffMat function, inputs matrices are not with the same dimensions
ERROR_CODE_TOOLS_TOOLS_DIFFMAT_ALLOCMAT	141,	tools.c, diffMat function, fail to allocate memory for matrix diff
ERROR_CODE_TOOLS_TOOLS_PRODMAT_SIZEMATS	142,	tools.c, prodMat function, input matrices are not with compatible dimensions
ERROR_CODE_TOOLS_TOOLS_PRODMAT_ALLOCMAT	142,	tools.c, prodMat function, fail to allocate memory for matrix prod
ERROR_CODE_TOOLS_TOOLS_SCALPRODMAT_ALLOCMAT	143,	tools.c, scalProdMat function, fail to allocate memory for matrix scalProd
ERROR_CODE_TOOLS_TOOLS_KEEPDIAGMAT_SIZEMAT	144,	tools.c, keepDiagMat function, dimensions of input matrix are not equal
ERROR_CODE_TOOLS_TOOLS_KEEPDIAGMAT_ALLOCMAT	144,	tools.c, keepDiagMat function, fail to allocate memory for matrix diag
ERROR_CODE_TOOLS_TOOLS_INVERSEMAT_SIZEMAT	145,	tools.c, inverseMat function, dimensions of input matrix are not equal
ERROR_CODE_TOOLS_TOOLS_INVERSEMAT_ALLOCMAT_LL	145,	tools.c, inverseMat function, fail to allocate memory for matrix ll
ERROR_CODE_TOOLS_TOOLS_INVERSEMAT_ALLOCMAT_ILL	145,	tools.c, inverseMat function, fail to allocate memory for matrix ill
ERROR_CODE_TOOLS_TOOLS_INVERSEMAT_LLNOTDEFPOSITIVE	145,	tools.c, inverseMat function, ll matrix is not definite positive
ERROR_CODE_TOOLS_INTERPHERMIT_NSAMPLINGTOOLOW	146,	interpHermit.c, not enough sampling in the dimension for Hermit interpolation
ERROR_CODE_TOOLS_INTERPHERMIT_INDEXINVALID	146,	interpHermit.c, index for interpolation is not valid
ERROR_CODE_MAINPROCESSING_ITERATIVESCHEME_ALLOCMAT_X_CASE2	147,	iterativeScheme.c, fail to allocate memory for matrix X , retrieval with all polarisations
ERROR_CODE_MAINPROCESSING_ITERATIVESCHEME_ALLOCMAT_X_CASE4	147,	iterativeScheme.c, fail to allocate memory for matrix X, retrieval with Stokes 1

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_MAINPROCESSING_ITERATIVESCHEME_ALLOCMAT_C0	147,	iterativeScheme.c, fail to allocate memory for matrix C0
ERROR_CODE_MAINPROCESSING_ITERATIVESCHEME_ALLOCMAT_XMOD	147,	iterativeScheme.c, fail to allocate memory for matrix X_mod
ERROR_CODE_MAINPROCESSING_ITERATIVESCHEME_ALLOCMAT_F	147,	iterativeScheme.c, fail to allocate memory for matrix F
ERROR_CODE_MAINPROCESSING_UPDATEPARAMETER_MATH	147,	update parameter.c, mathematical error
ERROR_CODE_MAINPROCESSING_COMPUTEMR4_ALLOCMAT_MR4	148,	computeMR4.c, fail to allocate memory for matrix MR4
ERROR_CODE_FORWARDMODEL_COMPUTETBFROMGROUNDTOANTENNA_ALLOCMAT_TBTARGET	149,	computeTBFromGroundToAntenna.c, fail to allocate memory for matrix tbTarget
ERROR_CODE_DECISIONTREE_SETL2FLAGS_ALLOCMEM_DESC	150,	setL2Flags.c, fail to allocate memory for the retrieval descriptor
ERROR_CODE_DECISIONTREE_SETL2FLAGS_ALLOCMEM_REPORTS	150,	setL2Flags.c, fail to allocate memory for the retrieval reports
ERROR_CODE_READ_INPUTS_DATA_SELECTION_NOGRIDPOINT	151,	read_inputs_data_selection.c, no gridpoint selected for processing
ERROR_CODE_CONFIG_PROTO_READPARAMINDICES_NOOPEN	152,	readParamIndices.c, Cannot get product informations of AUX_CNFOSD/F
ERROR_CODE_CONFIG_PROTO_READPARAMINDICES_NONODE	152,	readParamIndices.c, Cannot get node
ERROR_CODE_CONFIG_PROTO_READPARAMINDICES_NODATA	152,	readParamIndices.c, Cannot load ParamIndices data
ERROR_CODE_CONFIG_PROTO_READPARAMINDICES_MULTIINDEX	152,	readParamIndices.c, Parameter index not unique
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READECMWF	153,	readEcmwf.c, Cannot set ECMWF data.
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READECMWF_GPIDNOTSUPPORTED	153,	readEcmwf.c, The Grid Point Id is not supported
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READECMWF_NODATA	153,	readEcmwf.c, Cannot load data for Ecmwf
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READECMWF_NOOPEN	153,	readEcmwf.c, Cannot get information of product Ecmwf
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READECMWF_GET_COUNT	153,	readEcmwf.c, Cannot get number of DataSets of product Ecmwf
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READECMWF_GET_DATASET	153,	readEcmwf.c, Cannot get DataSets of product Ecmwf
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READECMWF_GET_DATASET_RECORD	153,	readEcmwf.c, Cannot get DataSetRecords of product Ecmwf
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READFOAMLUT_NOOPEN	154,	readFoamLUT.c, Cannot get product informations of FoamLUT

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READFOAMLUT_READMINMAXVALID	154,	readFoamLUT.c, Cannot get Min or Max Valid
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READFOAM_NOLUT	154,	readFoamLUT.c, Cannot read Foam LUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READGALACTICMAP_NOLUT	155,	readGalacticMap.c, Cannot read GalacticMap LUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READAUXDATAPROCLUT_NOLUT	156,	readAuxDataProcLUT.c, Cannot read AuxDataProc LUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READAUXDATAPROCLUT_NOOPEN	156,	readAuxDataProcLUT.c, Cannot get product informations of AuxDataProc from CNFOS2
ERROR_CODE_READ_INPUTS_DATA_SELECTION_INITIMEMODEL_NONODE	157,	initTimeModel.c, Cannot get node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_INITIMEMODEL_NOOPEN	157,	initTimeModel.c, Cannot open Time Model product
ERROR_CODE_READ_INPUTS_DATA_SELECTION_INITIMEMODEL_NODATA	157,	initTimeModel.c, Cannot load a Time Model
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READDGG_NODATA	158,	readDgg.c, Cannot get data from file
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READDGG	158,	readDgg.c, Error occured in readDgg function
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READDGG_NOOPEN	158,	readDgg.c, Cannot get information on product
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READDGG_NOMEM	158,	readDgg.c, Cannot allocate memory
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READHEADER_NONODEDATA	159,	readHeader.c, Cannot get data from node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READHEADER_NONODE	159,	readHeader.c, Cannot get node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READL1C_NODELETE	160,	readL1c.c, Cannot delete object
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READL1C_NODATA	160,	readL1c.c, Cannot get data
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READL1C_NOMEM	160,	readL1c.c, Cannot allocate memory
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READL1C_NODATASET	160,	readL1c.c, Cannot get dataset
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READL1C_NOCOUNT	160,	readL1c.c, Cannot get the count of data blocks
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READL1C_NOOPEN	160,	readL1c.c, Cannot open product
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NODELETE	161,	readLsm.c, Cannot delete object
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NONODEDATA	161,	readLsm.c, Cannot get Node data
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NONODE	161,	readLsm.c, Cannot get Node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NODATASETRECORD	161,	readLsm.c, Cannot get dataset record
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NOMEM	161,	readLsm.c, Cannot allocate memory

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NODATASET	161,	readLsm.c, Cannot get dataset
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NOCOUNT	161,	readLsm.c, Cannot get the count of data blocks
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLSM_NOOPEN	161,	readLsm.c, Cannot open product
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READCOMMONCSTLUT_NODATA	162,	readCommonCstLUT.c, Cannot get data from node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READCOMMONCSTLUT_NONODE	162,	readCommonCstLUT.c, Cannot get node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READCOMMONCSTLUT_NOOPEN	162,	readCommonCstLUT.c, Cannot open product
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READUSERGP_NONODE	163,	readUserGp.c, Cannot get node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READUSERGP_NOOPEN	163,	readUserGp.c, Cannot open product
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READUSERGP_NOMEM	163,	readUserGp.c, Cannot allocate memory
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH3COEF_NODATA	164,	readRough3Coef.c, Cannot find coefficient value in file
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH3COEF_NONODE	164,	readRough3Coef.c, Cannot find a node in file
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH3COEF_NOWINDRANGE	164,	readRough3Coef.c, Cannot load wind speed ranges for roughness models 3
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH3COEF_NOOPEN	164,	readRough3Coef.c, Cannot open the file
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH2LUT_NOLUT	165,	readRough2LUT.c, Cannot load Look-up table for roughness model 2
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH2LUT_NOMINMAX	165,	readRough2LUT.c, Cannot load bounds of Look-up table for roughness model 2
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH2LUT_NOOPEN	165,	readRough2LUT.c, Cannot open the file
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH1LUT_NOMINMAX	166,	readRough1LUT.c, Cannot load bounds of Look-up table for roughness model 1
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH1LUT_NOLUT	166,	readRough1LUT.c, Cannot load Look-up table for roughness model 1
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READROUGH1LUT_NOOPEN	166,	readRough1LUT.c, Cannot open the file
ERROR_CODE_CONFIG_PROTO_READJOBORDER_NODATA	167,	readJobORder.c, Cannot find data in the job order file

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_CONFIG_PROTO_READJOBORDER_NONODE	167,	readJobORder.c, Cannot find tag in the job order file, cannot find node
ERROR_CODE_CONFIG_PROTO_READJOBORDER_VARNOTSET	167,	readJobORder.c, Cannot find tag in the job order file, cannot set variable
ERROR_CODE_CONFIG_PROTO_READJOBORDER_NOOPEN	167,	readJobORder.c, Cannot open job order file
ERROR_CODE_CONFIG_PROTO_NOMEM	168,	config_proto.c, Cannot allocate memory
ERROR_CODE_CONFIG_PROTO_READCNF_L2OS_NOCLOSE	169,	readCNF_L2O.c, Cannot close private configuration file CNF_L2OS
ERROR_CODE_CONFIG_PROTO_READCNF_L2OS_NODATA	169,	readCNF_L2O.c, Cannot retrieve data from file CNF_L2OS
ERROR_CODE_CONFIG_PROTO_READCNF_L2OS_NOOPEN	169,	readCNF_L2O.c, Cannot open private configuration file CNF_L2OS
ERROR_CODE_CONFIG_PROTO_READCNF_L2OS_XML_RW_API_HOME_ENVNOTFOUND	169,	readCNF_L2O.c, environment vaiable XML_RW_API_HOME not set. Unable to find private configuration file CNF_L2OS__
ERROR_CODE_CONFIG_PROTO_READCNF_L2OS_SMOS_CNF_L2OS_ENVNOTFOUND	169,	readCNF_L2O.c, environment vaiable SMOS_CNF_L2OS not set. Unable to find private configuration file CNF_L2OS__
ERROR_CODE_READ_INPUTS_DATA_SELECTION_GET_VALIDITY_PERIOD	170,	get_validity_period.c, fail to get validity period
ERROR_CODE_CHECK_VALIDITY_PERIOD_PRODUCT_NOTVALID	171,	check_validity_period.c, invalidity period of the product.
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLUT	172,	readLut.c, Unable to read a Lut.
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READLUT_ALLOCLUT	173,	readLut.c, fail to allocate memory for a LUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_GETPRODUCT_INFO	173,	readXmlFunctions.c, fail to get product informations
ERROR_CODE_TOOLS_GET_MONTH_FROM_TRANSPORT_TIME	174,	getMonthFromTransportTime.c, fail to retrieve month of the year from time given in EECFI transport time format
ERROR_CODE_FORWARD_MODEL_SUPPORT_RADEC	175,	RADec.c, fail to compute right ascension and declination
ERROR_CODE_DIVISION_BY_ZERO	176,	mathematical exception
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READATMOSEFFECTLUT_NONODE	177,	readAtmosEffectLUT.c, Cannot find a node in file
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READATMOSEFFECTLUT	177,	readAtmosEffectLUT.c, Error occured in readAtmosEffectLUT function

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READFLATSEA_NONODE	178,	readFlatSeaCoef.c, Cannot find a node in file
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READFLATSEA	178,	readFlatSeaCoef.c, Error occured in readFlatSeaCoef function
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READSSSLUT_NOOPEN	179,	readSSSLUT.c, Cannot get information of product SSSLUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READSSSLUT_NODATA	179,	readSSSLUT.c, Cannot load data for SSSLUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READTHRESHOLDS_NOOPEN	180,	readThresholds.c, Cannot get information of product CNFLOS2
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READTHRESHOLDS_NONODE	180,	readThresholds.c, Cannot get node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READTHRESHOLDS_NODATA	180,	readThresholds.c, Cannot load data for THRESHOLDS
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READPOSTPROC_NOOPEN	181,	readPostProc.c, Cannot open the product PostProcLUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READPOSTPROC_NONODE	181,	readPostProc.c, Cannot get node
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READPOSTPROC_NODATA	181,	readPostProc.c, Cannot load data for PostProcLUT
ERROR_CODE_READ_INPUTS_DATA_SELECTION_READSSABSCLUT	182,	readSSAbscLUT.c, Error occured in readSSAbscLUT
ERROR_CODE_GENERIC_INTERP_INEXISTANT_ARRAY_DIMENSION	183,	interp.c, Error occured in GenericInterp function: inexistent array dimension
ERROR_CODE_GENERIC_INTERP_INVALID_INDEX	184,	interp.c, Error occured in GenericInterp function: invalid index
ERROR_CODE_GENERIC_INTERP_INVALID_COEFFICIENT	185,	interp.c, Error occured in GenericInterp function: invalid coefficient
ERROR_CODE_GENERIC_INTERP_VECT_INVALID_DIMENSION	186,	interp.c, Error occured in GenericInterpVect function: invalid dimension
ERROR_CODE_NEAREST_NEIGHBOUR_OUT_OF_MEMORY	187,	tools.c, Error occured in nearestNeighbour function: out of memory
ERROR_CODE_UNKNOWN_RETRIEVAL_MODE	188,	returnCodes.h, Unknow retrieval mode
ERROR_CODE_SIGILL	251,	trapped SIGILL - illegal instruction
ERROR_CODE_SIGBUS	252,	trapped SIGBUS - bad memory reference
ERROR_CODE_SIGSEGV	253,	trapped SIGSEGV - invalid memory reference
ERROR_CODE_SIGFPE	254,	trapped SIGFPE - floating point exception (including div 0 & overflow)

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Internal Error Name of return code. No L2 product generation.	Exit code	Function that generates the error and possible error description
RETURN_CODE_CANCEL_ORDER	255	Order cancelled (via Ctrl-C or cancel.xml)

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7 GSL Log INFO Messages

The SMOS L2 SSS processor outputs several types of log messages: advance, info, debug, warning & error. The default setting for the Log_Level specified in the job order is INFO; at this level it is required that a limit of approximately 10 INFO log messages are sent to the GSL (in addition to the advance messages, and any error or warning messages). During normal processing, exactly 102 ADVANCE messages are generated: START, END, and 100 progress messages. ERROR messages result in processor termination. Any number of WARNING messages may be issued during processing.

The following INFO messages are sent to the GSL in this sequence if there are no processing errors:

INFO message	**Notes**
Start of processing	Immediately after [A][000_STA_000]
Number of gridpoints selected for processing after module readL1cFile is %d	
Computing angles...	
Measurement selection completed	Followed by [A][000_PRO_000]
Number of gridpoints to be processed with configuration 1: %d	Followed by [A][001_PRO_000] to [A][025_PRO_000]
Number of successful retrievals with configuration 1: %d	
Number of gridpoints to be processed with configuration 2: %d	Followed by [A][026_PRO_000] to [A][050_PRO_000]
Number of successful retrievals with configuration 2: %d	
Number of gridpoints to be processed with configuration 3: %d	Followed by [A][051_PRO_000] to [A][075_PRO_000]
Number of successful retrievals with configuration 3: %d	
Number of gridpoints to be processed with configuration 4: %d	Followed by [A][076_PRO_000] to [A][100_PRO_000]
Number of successful retrievals with configuration 4: %d	
Writing output files...	
End of processing	Followed by [A][100_END_000]

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Appendix A – Feedback Form

The form below is the template of the feedback form. The form is aimed at reporting software problems or at requesting changes in the SMOS L2 SSS operational processor. The forms shall be sent to smos@argans.co.uk.

Feedback form		Number	####
Contact Person	Name and institution	Initiated	*date*
Level	*low/medium/high/critical*	Status	*open/pending/ closed*
Type	*problem/ coherence/ potential improvement*	Completed	*date*

Description:
Report in detail the context from which the feedback emerged.

Expected improvement:
Describe improvements expected if the lesson learned from the feedback is applied.

Recommendations for implementation:
List documents, activities, software or data set affected by implementation deemed necessary to obtain the expected improvement. Propose solution(s) and assess workload needed.

Difficulty of implementation	*easy/normal/tricky*	Reviewed by SMOS project team	PM-# *date*
Workload	*low/medium/high/hours/days*	Implementation	*yes/no*

Justification:
Justify implementation or no implementation.

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